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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,384	03/26/2004	Yao-Hwan Kao	N1085-00244	8604
54657	7590	11/09/2006	[TSMC2003-078]	
DUANE MORRIS LLP IP DEPARTMENT (TSMC) 30 SOUTH 17TH STREET PHILADELPHIA, PA 19103-4196			EXAMINER KORNAKOV, MICHAEL	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 11/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/810,384

Applicant(s)

KAO ET AL.

Examiner

Michael Kornakov

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 March 2004.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - the recitation of paragraph 0019 is not readily ascertainable. It is not clear what abbreviations HB and PR are related to.
  - Paragraph 0020 does not contain any information.
  - Paragraph 0023 recites "Fig. 1A discloses that...the robot arm moves the first nozzle away from the axis of rotation...". Apparently, Fig. 1B should be indicated instead.
  - Paragraph 0022 recites "Fig. 1". Apparently, Fig 1A should be indicated.Appropriate corrections are required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-5, 9-12 are rejected under 35 U.S.C. 102(a) as being anticipated by Kuroda et al (U.S. 2003/0172955).

Kuroda teaches substrate processing method and substrate processing apparatus. The processing method of Kuroda comprises rinsing and drying a substrate, which includes dispensing rinsing liquid on the substrate; spinning the substrate about

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an axis of rotation and blowing a dry gas against the substrate. The rinsing liquid and the drying gas are disposed through the respective nozzles, which are mounted on the movable robot arm and pointed to the substrate near the axis of rotation.

The apparatus of Kuroda comprises a (first) nozzle, mounted on a robot arm for dispensing rinsing liquid against the substrate and a (second) nozzle, mounted on the robot arm for blowing dry gas against the substrate (Fig. 19, 20; 0156-0160;0181;0185). Therefore, all the limitations of the instant claims are met by Kuroda.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein.

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were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 6-8, 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuroda et al (U.S. 2003/0172955) in view of Nakajima et al (U.S. 2003/0084925).

With regard to claims 6-8, while teaching dispensing rinsing liquid and drying gas onto the substrate, Kuroda does not specifically indicate opening and closing respective valves. However, using the valves for regulating the flow of respective fluids and the steps of opening and closing such valves routinely utilized in the art. Thus Nakajima teaches substrate cleaning method, wherein the flows of nitrogen and DI water are controlled by respective switch-controlled valves 64-66 (0048). Therefore, one skilled in the art would have found obvious to utilize respective valves, for example such valves as described by Nakajima, and open/close these valves in order to control the flow of respective fluid while processing the substrate in the method of Kuroda. With regard to claims 6-8, reciting "a motor controlled valve", it is noted here that claims 6-8 recite the processing steps. Therefore, the recitation of specific structural limitations of apparatus for performing such steps does not serve to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). Furthermore, with respect to claim 14, Nakajima teaches switch-controlled valves, which are conventionally motor controlled.

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With regard to claims 13 and 15, reciting microprocessor, which controls the robot arm and the valves, such microprocessors are known in the art. Thus, Nakajima teaches a controller 70, comprising microcomputer, which controls a motor 25 connected to robot arm 21 with respective nozzles mounted thereon and the operation of valves 64-66 (0050). Since automation of semiconductor processing equipment is routinely utilized in the art, one skilled in the art would have found obvious to employ a controller with microprocessor of Nakajima in order to control and efficiently operate the processing parts of the substrate cleaning apparatus of Kuroda.

#### ***Election/Restrictions***

8. Applicants' attention is drawn to the fact that the instant claims recite at least two distinct inventions – a process for rinsing and drying a substrate and an apparatus for rinsing and drying a substrate. The restriction requirement is not made at this time, however it may be imposed later if the claims are amended to introduce additional limitations to each invention, which would require additional search.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (571) 272-1303. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "M. Kornakov", with a long, sweeping horizontal stroke extending to the right.

Michael Kornakov  
Primary Examiner  
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11/07/2006